

Military & Aerospace Electronics Forum

June 3-4, 2010



Mr. Christopher Ostrowski

Associate Director, Vehicle Electronics and Architecture U.S.
Army Tank Automotive Research, Development & Engineering
Center (TARDEC)



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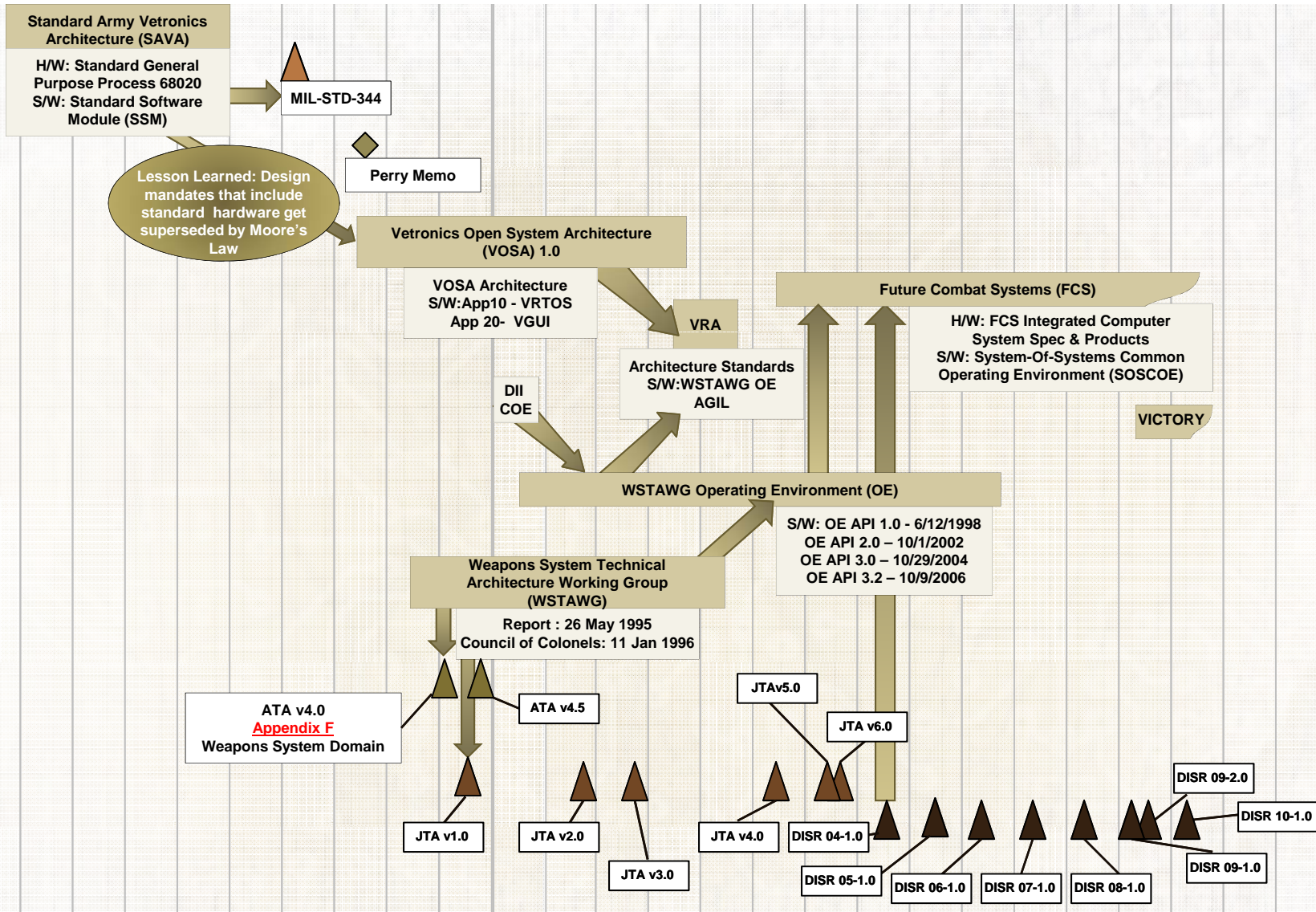
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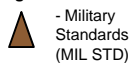
History of Past Architecture Efforts



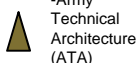
1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012



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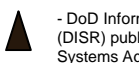
- Military Standards (MIL STD)



- Army Technical Architecture (ATA)



- Joint Technical Architecture (JTA)



- DoD Information Technology Standard (DISR) published by Defense Information Systems Agency (DISA)

Defense Information Infrastructure Common Operating Environment (DII COE)

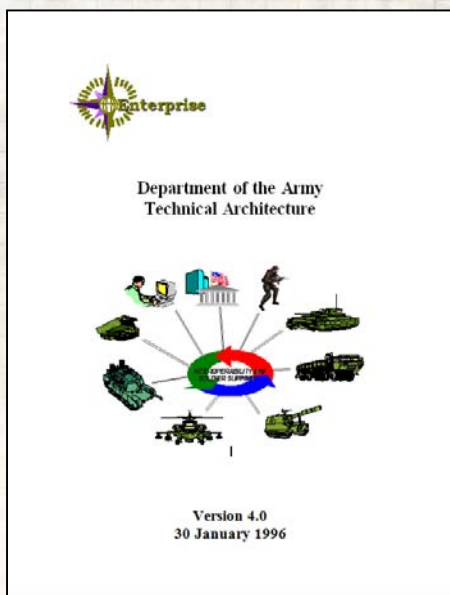
Vetronics Reference Architecture (VRA)

Hardware (HW)
Software (SW)

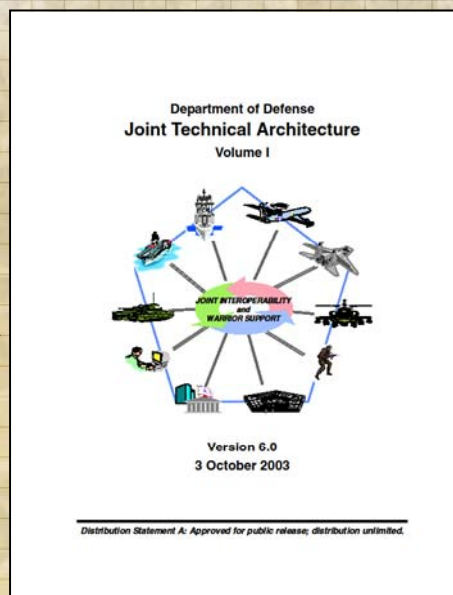
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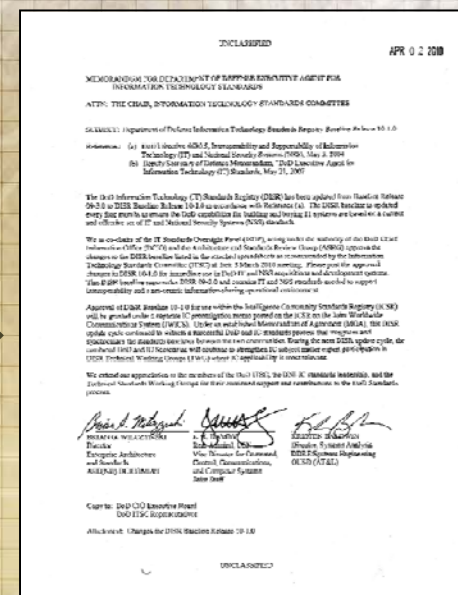
Technical Architecture Standards



Army Technical Architecture (ATA)



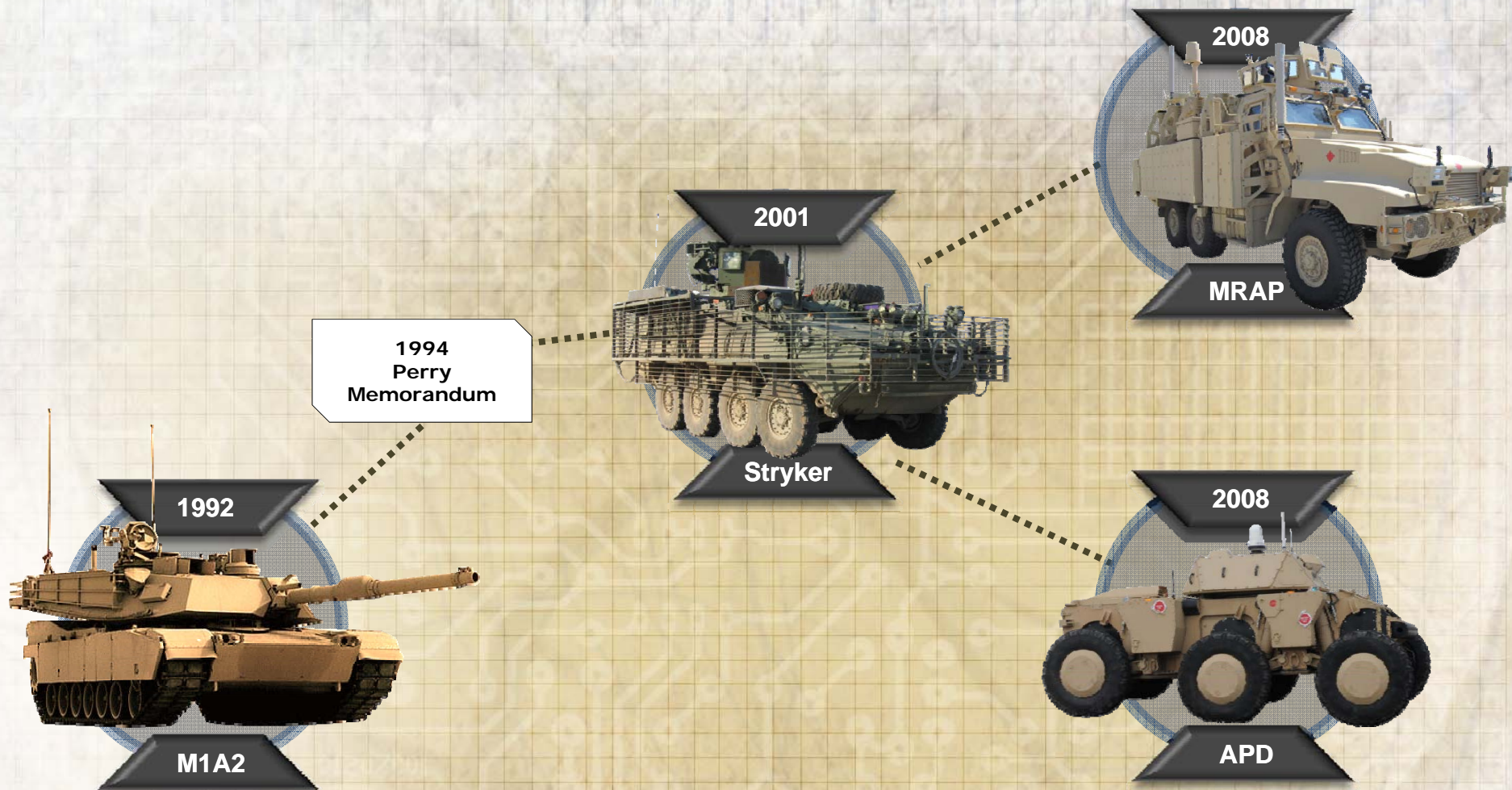
Joint Technical Architecture (JTA)



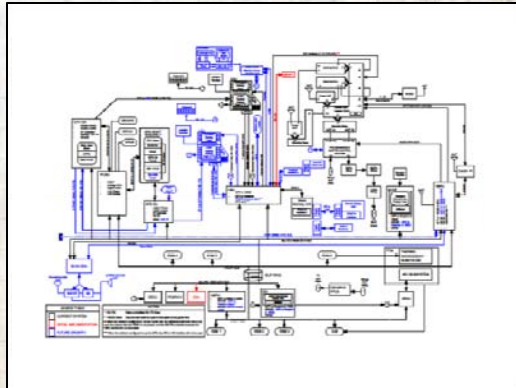
DoD Information Technology Standard (DISR)

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

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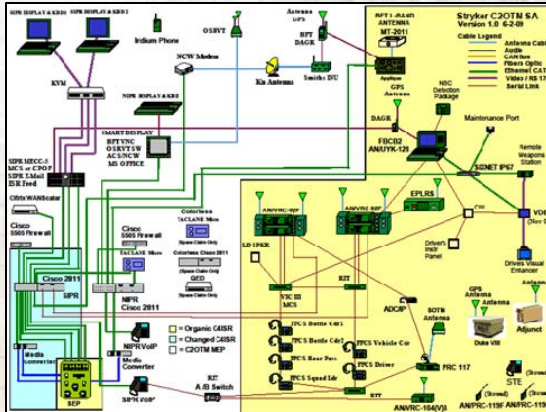
**The need for increasing Command & Control functionality
has driven the need for more COTS.**



- MIL STD 1553-based Architecture
- SINCGARS Radios
- Digital Command, Control and Communications Capability
- Max Speed - 42 mph (Governed)
- Power/Weight Ratio - 21.6 hp/ton
- Vertical Obstacle - 42 in
- Ground Clearance - 19 in
- Gross Vehicle Weight - 69.54 ton
- Overall Length (Gun Forward) - 387 in
- Overall Width - 144 in



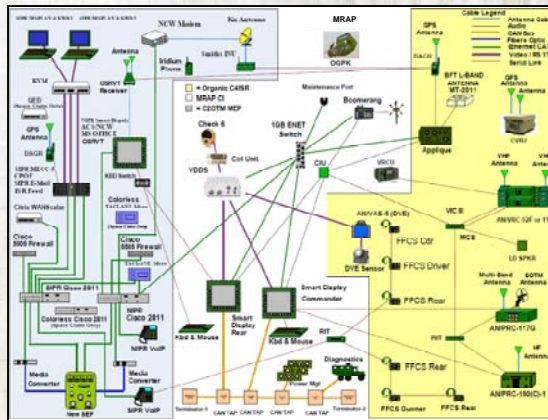
1553 tightly coupled bus schedule



- **Ethernet**
- **Enhanced Position Location and Reporting System (EPLRS) Radios**
- **Extensive COTS Integration**
- **Max Speed - 62 mph**
- **Max Trench Crossing - 6.5 ft**
- **Gross Vehicle Weight - 18.12 ton**
- **Overall Length - 275 in**
- **Overall Width - 107 in**



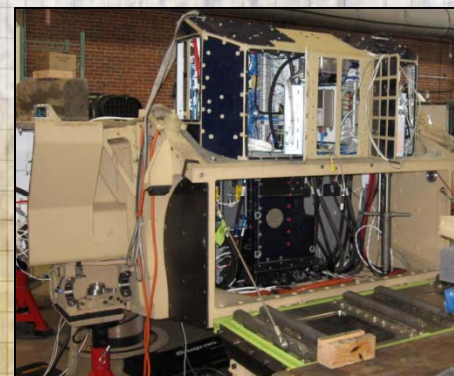
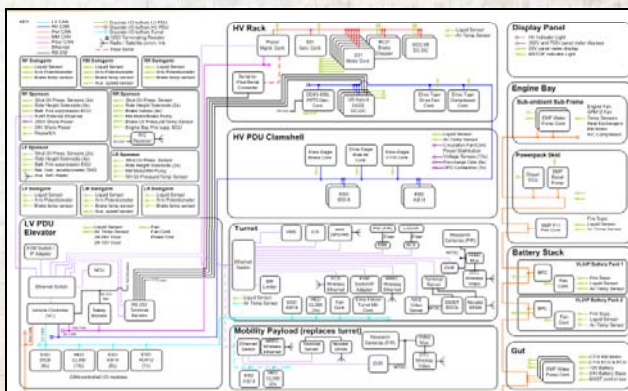
First use of Ethernet as an interface to C2 systems



- **Ethernet Backbone**
- **Data Radios and Satellite Communications**
- **19" COTS Smart Displays**
- **Max Speed - 65 mph (Governed)**
- **Gross Vehicle Weight - 23 ton**
- **Overall Length - 257 in**
- **Overall Width - 102 in**



Extensive use of Ethernet & COTS equipment

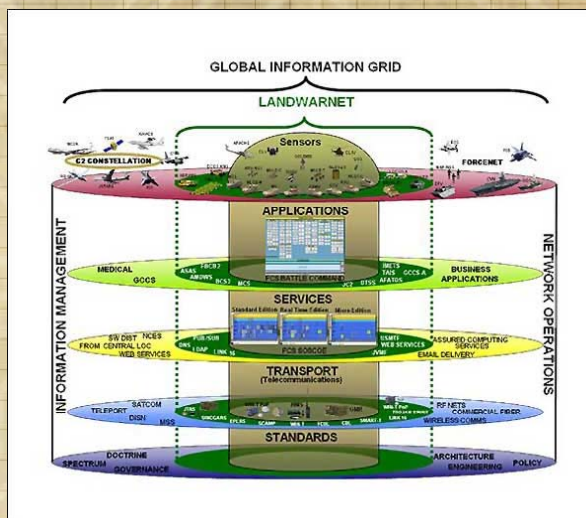


- Multiple CAN Busses & Gigabit Ethernet (GbE)
- COTS Data Radios – 802.11 Based
- Extensive COTS Components
- Max Speed - 50 mph
- Generator Output - 197 hp
- Battery Energy - 21.8 kW-hr
- Battery Max Power - 282 hp
- Power/Weight Ratio - 112 hp/ton
- Peak Torque - 41,368 ft-lb
- Vertical Obstacle - 39 in
- Trench - 39 in
- Fording - 20 in
- Gross Vehicle Weight - 9.3 ton
- Overall Length - 182 in
- Overall Width - 98 in



Multiple CAN busses & Gigabit Ethernet as vehicle backbone

- Vehicle backbones will be based on 10 Gigabit Ethernet (GbE).
- Increase use of software Application Programming Interfaces (APIs).
- Need for increased radio throughput (10 megabyte/sec).
- Global Information Grid



We need to get Ethernet level throughput via radio networks if we want to get truly connected.